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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/775,838 | 02/01/2001 | Toshio Hata | 299002051900 | 1157 |

25226 7590 11/13/2002
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[REDACTED] EXAMINER

LE, THAO X

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2814

DATE MAILED: 11/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/775,838 | HATA ET AL. |
| Examiner | Art Unit | |
| Thao X Le | 2814 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 September 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) 14 and 15 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Drawings

1. Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in–
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1-4, 6-11 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6242761 to Fujimoto et al.

Please refer to previous Office Action in Paper No. 6.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Tamaki et al.

Regarding to claim 13, Tamaki discloses a GaN semiconductor LED, fig. 11-15 comprising: a substrate 1, an n-type electrode region 3 comprising an n-type transmissive electrode 8, a GaN compound semiconductor multiple layer structure including an active layer 3, a p-type electrode region comprising a p-type transmissive electrode 7, wherein the n-type transmissive electrode is formed on a side face of the substrate 1, a side face of the buffer layer 2, and a side face of the n-type GAN compound semiconductor layer in a region neighboring the buffer layer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6242761 to Fujimoto et al. in view of US 5369289 to Tamaki et al.

Regarding to claim 5, Fujimoto discloses a gallium nitride (GaN) compound light-emitting diode (LED) wherein the GaN compound semiconductor multiplayer structure includes a buffer layer 102 and a n-type GaN transmissive electrode 130/140.

But Fujimoto does not expressly disclose a gallium nitride (GaN) compound light-emitting diode (LED) wherein n-type transmissive electrode is formed on a side of

the substrate, a side face of the buffer layer, and a side face of the n-type GaN compound semiconductor layer in a region neighbor the buffer layer.

However, Tamaki reference discloses the a gallium nitride (GaN) compound light-emitting diode (LED) having multiple layer structure, fig. 11-15, wherein n-type transmissive electrode 8 is formed on a side of the substrate 1, a side face of the buffer layer 2, and a side face of the n-type GaN compound semiconductor layer 3 in a region neighbor the buffer layer. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the transmissive electrode 8 teaching of Tamaki to replace the n-type GaN transmissive electrode 130/140 of Fujimoto, because it would have resulted in an improvement of light emission efficiency as taught by Tamaki, column 7 line 9-12.

Regarding to claim 12, Fujimoto does not expressly disclose the GaN compound LED wherein the n-type and p-type transmissive electrode are of a thickness of 30 nm or less.

But Fujimoto discloses the GaN compound LED wherein the n-type and p-type transmissive electrode 130 and 131 are of a thickness of 50 nm, column 6 line 66 and 51 nm, column 7 line 26-28. Accordingly, it would have been obvious to use electrodes thickness teaching of Fujimoto in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

Allowable Subject Matter

8. Claims 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With respect to claim 14-15, the prior art fails to disclose the n-type transmissive electrode comprises an oxide semiconductor and thick film of ITO.

Response to Arguments

9. Applicant's arguments filed on 09/09/02 have been fully considered but they are not persuasive. The Applicant argues that the Fujimoto structure is not 'substantially transparent'. The Examiner respectfully disagrees because Fujimoto device comprises material substantially identical to that of the subject claimed; thus it would be substantially transparent, which meets the claim language. Furthermore, the claimed and the prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established.

In re Best, 195 USPQ 430, 433 (CCPA 1977).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X Le whose telephone number is 703-306-0208. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Thao X. Le
November 1, 2002



PHAT X. CAO
PRIMARY EXAMINER